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Selecting Shrubs for Planting.

We have recently received a request from one of our readers to give a list of fifteen or twenty of the best shrubs for planting in the latitude of New York. The request is not an unusual one, and, indeed, we often see in horticultural papers and nurserymen's catalogues lists of trees and shrubs made out as standing answers to similar inquiries. It will be very evident, however, to any one who gives a little reflection to the subject, that a shrub may be the best possible one for a given situation and use, while it would be altogether out of place in another situation and where another effect was wanted. A shrub may be desirable for its flowers only; it may be useful because it flowers at a particular season of the year; it may make a superb specimen when planted singly on an open lawn, with full chance to develop in every direction; it may be admirable in groups or for connecting large masses of shrubbery with the green turf; its particular value may consist in its ornamental fruit, or the color of its foliage in the autumn or in early spring. It is evident, therefore, in order to give any intelligent advice about selecting shrubs, the purpose for which they are to be used must be distinctly understood. Besides this, the position in which they are to stand must be considered. One ought to know whether the soil in which they are to grow is deep and rich or thin and hungry; whether they are meant to cover a dry bank, or to stand on the border of a lake where the soil is always damp; whether they are to be exposed to bleak winds or hot sunshine, or sheltered and shaded. When a planting plan is once made and the designer has the undeveloped picture in his mind, it is not difficult to make a good selection, for the variety of shrubs which we can command is so great that something can be furnished to fill every situation and every need.

Very frequently, however, no such thing as a plan is attempted. The planter buys a collection of such shrubs as are recommended in some catalogue or by some friend, and after he has received them he begins to hunt a place for them. As he has little idea of the size and form into which each one will develop, the effect of this jumble is not likely to be pleasing. Even where no attempt to produce a consistent picture is made, and the planter only wishes to make a collection of shrubs for their individual qualities, it is quite as important that he should know something about their form and size and their requirements as to soil and exposure if he is to have satisfactory specimens. The true way to obtain such a knowledge of shrubs as is needed for planting is to study them personally. Opportunities for such study can be had in many large private places and public parks, at the trial-grounds of the better class of nurserymen, and in such institutions as the St. Louis Botanical Gardens and the Arnold Arboretum. It may be difficult in some sections of the country to find such easy access to large collections that each shrub can be seen at the particular season when it is most desirable, but these special details can be obtained by any one who is earnest in the matter, by special correspondence, or reading. There are very few shrubs in cultivation which have not been very carefully described in some of the volumes of Garden and Forest. Not only is this true of recent introductions, but there is hardly a shrub of standard merit whose botanical characters have not been given, together with the qualities which have a garden value. All such information as planters desire concerning any shrub, its size, its habit of growth, its time of flowering, the quality of its fruit and foliage, and the soil in which it most delights, and the purpose to which it is best adapted has been carefully set forth.

A general answer like this will hardly satisfy our inquiring correspondent, but it will serve a good purpose if it prompts him or any one else to set about a systematic examination of shrubby plants. We have often repeated that for American gardens there is no class of plants so useful as the deciduous flowering shrubs, and we cannot too often or too urgently advocate their more extensive use. They are comparatively inexpensive, and beginners need not be eager to get possession of what is new and rare, because, as a rule, old plants are the best. We do not mean that none of the comparatively recent introductions are as good as the shrubs which are found in old gardens. Magnolia stellata, for example, although as yet it is comparatively rare, is a plant to grace the smallest place, suitable for the yards of city houses or for rock-gardens in the country, or for any other situation where pure white and deliciously fragrant flowers are wanted in early spring. Berberis Thunbergii is another shrub comparatively new to cultivation, but its showy fruit, brilliant autumn coloring, rapid growth, perfect hardiness and compact habit unite to make it generally desirable. Syringa pubescens, which was figured on page 266 of the present volume, is one of the very best of the Lilacs in habit, foliage and in the delicate fragrance of its flowers. Symplocos paniculatus, with its berries of ultramarine blue, should not be neglected wherever distinct and showy fruit are desired. Rosa Wichuriana, Corylopsis pauciflora, Deutzia parviflora, and many other shrubs of comparatively recent introduction, might be named as desirable for special purposes even in small collections. All of these we have described and commended, and many of them we have figured. Among the older and better-known shrubs, however, plants can be found to adorn any situation and serve satisfactorily any decorative purpose. With little care the shrubbery in this climate will be beautiful from early April, when the flowers of the little Heath, Erica carnea, are quickly followed by those of Daphne Mezereum and Cornus mascula, until October, when the foliage becomes as beautiful as the flowers of spring and summer; while some shrubs, like our native Yellow-root, the Washington Thorn and Cornus sanguinea, will hold their brilliant colors well into November. Even in winter the shrubbery is brightened by showy fruit, like that of the Black Alder and some of the Barberries, while the soft colors of their leafless twigs lend a charm to the dreary season until the catkins

of the Willows and Hazels proclaim the approach of another spring.

None of these thoughts are unseasonable, for although it is not the time to plant shrubs until next spring, preparation for the planting should not be delayed. If a novice occupies himself at odd moments henceforward in determining what he is to plant, and where it is to be planted, much will be gained if the ground is thoroughly prepared this fall, dug deep, trenched, if possible, filled in with good loam and properly drained where needed. When these preliminaries are accomplished and the ground has been all winter firmly settling, it can be worked much earlier in the spring and the planting can be more thoroughly done in that hurried season. This proper preparation will be seen in a more vigorous growth, more luxuriant foliage, and more abundant flowers and fruit. In fact, there is no work in the garden which pays better in the long run than thorough preparation of the ground at this season for the trees and shrubs which are to be placed in it the following year.

In the August number of *Harper's Magazine*, Mr. Charles A. Platt concludes his notes on Italian Gardens, which, by the way, he asks the reader to consider as a mere supplement to the illustrations. As we stated when the first part of the article appeared, these pictures reproduce parts of the gardens in their present condition, the selection having been made with an attempt to show the strong original features which have survived the neglect of years and the reconstructions which have come with changing tastes and fashions. We cannot help feeling that much of the interest which invests these pictures and the originals is derived from the fact that they are, in a measure, ruined, and therefore appeal to that reverential sentiment which thoughtful minds always feel in the presence of works which have come down to them from the past. It would be hard to reconstruct a picture of these gardens in their palmiest days. We can imagine their architectural details, the statues and fountains, the walls and staircases; but, apart from the fact that there were Ilex walks and Cypress avenues, the particulars of the planting must after all be largely guessed at. What flowers were in the flower gardens and how they were arranged we can hardly know. There is little which is distinctive in the flowers or their arrangements in the Roman gardens as we know them now.

Mr. Platt hopes that his pictures will lead to a better understanding and appreciation of the reasons for the formal treatment of these gardens, and adds, that "as there is a great similarity in the character of the landscape in many parts of our country, the same reasons might lead to a revival of this method as equally adapted to this country and to Italy." No doubt formal gardens can be made very beautiful in places where they are appropriate, but formal gardening on so extensive a scale as it was known in Italy at the time of the Renaissance will probably never be practised in any part of the United States, and, indeed, there is no reason why it should be. The architectural details would only be admissible in those parts of the country which are never visited by heavy frost, and even when the south can boast of groups of palaces in which wealthy Americans congregate, this type of garden, which is really a part of the house—an outdoor extension of apartments within—would naturally be on a smaller scale than those of the great Italian villas. Where grounds of park-like extent are to be treated, no true artist would attempt the wearisome repetition of rigid lines in these old models.

We have said that the ruins of these Italian gardens now make an appeal to our sentiment of veneration, and perhaps it is true that in this way they touch the profounder part of our nature more deeply than they did in their prime. A wall of green, with its sides and angles clipped to a mathematical nicety; straight lines of foliage which repeat the architectural ideas of the splendid building with which they are connected; beds of flowers in set figures and appropriate colors to harmonize with the well-balanced design; all these may be conceived and realized when the true artist in formal gardening makes his appearance. But, after all, works of this kind only appeal to the æsthetic sense; they delight the eye and satisfy the cultivated taste as a beautiful piece of tapestry or pottery does. It is beauty for its own sake. It expresses no sentiment and carries no inner meaning; it does not address itself to the nobler part of our nature as simple natural scenery does. Such a creation as the Arsenal Garden, in Tōkyō, and even a Fern-crowned rock by a mossy streamlet, we naturally speak of as restful and soothing. No formal flower-bed or clipped tree was ever restful. The fundamental difference between the two styles of gardening is that they address different faculties and sensibilities. The one can excite admiration; the other, through the imagination, may stir the profoundest feelings of the soul.

How to Preserve Cut Flowers.

In the hot, dry days of summer one often finds the flowers in vases, although freshly gathered, in a drooping condition, the result, it may be, of plucking them at the wrong hour, or of improper attention afterwards. They who would keep their bouquets bright and vivid throughout the day, should rise betimes, for there is no freshener like the dew of the morning, whether for blossom or complexion. Poppies, fleeting and frail, if plucked before the sun has dried the dewdrop at their hearts, and quickly placed in water, will last sometimes for two days without falling, and the same is true of other tender garden-flowers. Should the basket of cut flowers show signs of drooping, dip the bunch head downwards into water and give it a gentle shake. This is very efficacious in reviving flowering shrubs brought from a distance, when they become wilted before reaching home.

The Japanese have made a special study of this branch of the art of flower arrangement, and have special rules for different plants. If the Wistaria is to be used in decoration, its cut stem is burned and then immersed in spirits. The Hydrangea and the Lespedeza should also have the cut ends burnt to charcoal before immersing in water. All flowers which suck up water with difficulty are improved in vitality by treating the end of their stems with fire or hot water. Land plants derive benefit from burning, but water plants require boiling water.

When the Japanese use the Bamboo in decoration, which is their frequent custom, they cut it at a very early hour, four in the morning, and remove the bottom division or knot, leaving the upper division untouched. They then fill the tube with fifty-eight grains of cloves stewed in hot water and seal up the bottom. It is then laid horizontally until the liquor enclosed is cool, after which it is ready for use. When the colored Maple is employed, the leaves are immersed in water for an hour before using. The very dark red ones are particularly hard to preserve, but the lighter ones are more enduring. The Willow has its cut stems spliced off and then bound up with a drug they call senkin, the branch afterwards being left in water over night.

The Morning Glory, of which the Japanese make great use, is carefully cut in the evening after the flowers are tightly closed. The sleeping buds are then gently wrapped in soft paper by their dextrous fingers, and this is not removed until the following morning, when the arrangement is made. Begonia Evansiana should be cut in the early morning, the buds removed with a sharp knife, and the whole immersed in water before arranging. Monochoria vaginalis, when cut, should have about one inch of the end immersed in hot water until the color changes, and it must then be dipped deeply in cold water, after which it is ready. The same treatment is applied to Senecio Kæmpferi.

The Prickly Poppy (Argemone Mexicana) is treated by having its stem tightly tied around with soaked paper at a point five or six inches above the cut end. This end should then be burnt with a flame, after which the paper is removed, and the flower is ready to use. The Yellow Water-lily (Nuphar Japonicum) should be selected from a shallow spot, and cut during the heat of the day. A liquid composed of cloves boiled in tea should then be blown into the cut stem, and thus the vitality of the flower is prolonged. Whether this treatment is also desirable for the White Pond-lily, Mr. Conder, who is my authority for Japanese practices, does not state, but it would be worth while to experiment if thereby this lovely flower could be longer retained in perfection.

The great Japanese Irises, if cut while in bud, will open freely in water, and last longer than if allowed to open out-of-

doors, where the sun promptly wilts their beautiful blossoms and curls the tender petals almost before they have expanded. Nasturtiums, too, suffer from being gathered while the sunlight is hot upon them, but in the early morning, with the dew still damp upon their leaves, they can be found nestling in the shadow with half-open heads just in the right condition for our vases. The fragile Heliotrope plucked at this hour will retain its freshness, whereas if culled when the sun lies fierce upon it, it will droop and turn black in the shadiest parlor.

Flowers and plants wilt because water is transpired by leaves and petals more rapidly than it is taken up through the stem. On a dry, hot day leaves and flowers often wilt on the plant. Even when not actually wilted they may contain barely moisture enough to hold them in shape, and when cut under these circumstances they wither at once unless they are put into water instantly, when they will often become more plump than they were before cutting. The stems of plants when cut begin immediately to change structure, and form a callus at the wound, which interferes with the absorption of fluids. It is advisable, therefore, to cut the stems off a second time while under water, so that all the channels through which water rises may be without any obstruction. As there are many substances besides water in the juice of plants, some of these odd Japanese practices may have some value. At least, they are worth trying.

Hingham, Mass. *M. C. Robbins.*

Notes on the Forest Flora of Japan.—XVIII.

THE flora of Japan, although it is comparatively rich in Euphorbiaceæ, does not contain any important trees belonging to this family. One species of Daphniphyllum, a Malayan genus with beautiful, lustrous, evergreen foliage and handsome fruit, and now known in the gardens of temperate Europe in the shrubby D. glaucesens, attains the size of a small tree; this is D. macropodum, which we saw not far from Gifu, growing, as it seemed, naturally. It is interesting to note that one species of this tropical species, D. humile, grows as far north as Yezo, where, as well as on the mountains of northern Hondo, it is a common under-shrub in the forest of deciduous trees. We obtained a supply of seeds of this handsome plant, although it is hardly to be expected that it will be able to survive our northern winters, as it will miss here the continuous covering of snow under which it is buried in Yezo during many months of the year.

Of the small genus of Aleurites of eastern tropical Asia and the Pacific islands, one species reaches southern Japan, A. cordata, which we only saw in the Botanic Garden at Tōkyō. This little tree has large long-stalked, three-lobed leaves, inconspicuous flowers in terminal panicles, and large black drupe-like fruit; it may be expected to grow in the southern states, but it will be valued for its botanical interest, and not for its beauty. And this is true of the other Japanese tree of the Euphorbia family, Excœcaria Japonica, which may possibly prove hardy here in New England, as we found it growing on high elevations on the Negasendo, near Agamat-su, in central Japan, as well as on the high Otome-tog, in the Hakone Mountains; and Mr. Veitch gathered specimens on Mount Chokai-zan, on the north-west coast of Hondo. It is a small tree with thick, firm, dark green leaves which vary from oval or obovate to obovate-lanceolate, and are sometimes six or seven inches long, and three-lobed fruit three-quarters of an inch in diameter.

Of the Nettle or Elm family, Japan possesses some important trees, although in Elms themselves the flora of Japan is poor as compared with that of eastern North America, where there are five well-distinguished species, while in Japan there are only two; these are both continental, reaching in Japan their most eastern home. In Hondo Elm-trees are not common, and in that island are no where such features of vegetation as they are in our New England and middle states and in Europe, and it is only in mountain-forests between 3,000 and 5,000 feet above the sea-level that occasional small plants of Ulmus campestris, with branchlets often conspicuously winged, appear. In Yezo, however, this tree is much more abundant, growing on the river-plains nearly at the sea-level and in the forests which cover the low hills, not infrequently becoming a prominent feature of the landscape. In Sapporo, where many fine old specimens were left in the streets by the American engineers who laid out the town, individuals seventy or eighty feet tall, with trunks three or four feet in diameter, may be seen. The broad heads of graceful pendant branches reminded us of New England, for this Japanese form of the Old World Elm has much of the habit of the American White Elm. The portrait of one of these trees, although not a large one, growing a mile or two from Sapporo, appears on page 327 of this issue, and gives a fair idea of the habit of this tree in Yezo.

The second Elm of Japan grows in all the mountain-woods near Sapporo. The Russian botanists have considered it a peculiar variety of Ulmus montana, to which the name laciniata has been given, and which is principally distinguished by the peculiar shape of the leaves, which are often six or seven inches long, three or four inches broad, coarsely serrate and often three-lobed at the wide apex. It is a small tree, barely more than thirty feet tall, as we saw it, and very fragrant, like our American Slippery Elm, which in habit it much resembles. It is from the tough inner bark of this tree that the Ainos weave the coarse brown cloth from which their clothes are made. The process is a simple one; the bark is stripped from the trees in early spring, and is then soaked in water until the bast, or inner bark, separates from the outer in long strips, which are twisted by the women into threads and are then ready for use. This interesting tree is not in cultivation, I believe, and we reached Yezo too late to obtain its seeds. It is desirable, however, that it should be brought into our gardens, not only on account of the curious appearance of the leaves, but that its development may be watched, for when it can be compared in a living condition with the European and Siberian forms of Ulmus montana, it may prove sufficiently distinct to be regarded as a species.

The Keaki, Zelkova Keaki, a member of this family, is, perhaps, the largest deciduous-leaved tree of Japan; it is its most valuable timber-tree. The Keaki may be described as a Beech, with the foliage of an Elm. The bark is smooth and pale, like the bark of a Beech-tree, and the dense, compact round head of slender branchlets resembles the crown of that tree, while the leaves, which are large, ovate-acute, coarsely serrate, and roughened on the upper surface, are like those of the Elm.

Zelkova is a genus with three arborescent species; one inhabits Crête, another the Caucasus, and the third Japan. The flowers are very similar to those of the Elm, and are unisexual or rarely polygamous, and are produced in early spring on branchlets of the previous year, the males clustered in the axils of the lower leaves and the females solitary in those of the upper leaves. The fruit is a small drupe, more or less irregularly oblique in shape and two-beaked with the remnants of the eccentric style, with a membraneous or slightly fleshy outer covering and a thin hard endocarp, or stone, containing a single compressed concave, horizontal seed, without albumen, the thick embryo filling its cavity.

Zelkova Keaki sometimes grows to the height of a hundred feet and produces a trunk eight to ten feet in diameter. Such specimens are often found in the gardens surrounding temples in the large cities, and by village road-sides in the interior provinces. If any wild Keakis are left in the forests of Japan they must be rare, and I am not sure that we saw this tree growing naturally, although it is everywhere one of the most commonly planted deciduous trees. Large specimens, which we saw on the Nagasendo, near Agamat-su, in one of the mountain-provinces of central Hondo, and a very remote region, may have been growing naturally, but even this is doubtful, for the Nagasendo has been a traveled highway for at least twelve hundred years, and a thousand years ago was probably more frequented than it is now. Of the range and habitat of this tree I have, therefore, no idea whatever.

The wood is more esteemed by the Japanese than that of any of their other trees. It is noted for its toughness, elasticity, and durability, both under water and when exposed to the air; it is considered the best building material in Japan, although it has become so scarce and expensive that Keaki is not now used for this purpose, except in temples where the large round, light brown, highly polished columns which support the roof are always made of this wood. It is still much used in cabinet-making, turnery, and in the manufacture of many small articles, which always command high prices.

Zelkova Keaki is probably the only Japanese tree which is worth introducing into this country on a large scale as a timber-tree; that it will thrive here at least as far north as southern New England the plants in Dr. Hall's garden in Warren, Rhode Island, indicate. There are two of these raised from seed sent home by Dr. Hall in 1862; they have received no special care, the soil in which they were planted is not exceptionally good, and their growth has been no doubt checked by overcrowding. They are now, however, at least fifty feet high, and have produced trunks a foot in diameter; they flowered and fruited this year, and the illustration on page 325 of this issue is made from specimens sent by Dr. Hall, with the exception of the large single leaf, which has been drawn from a specimen gathered in Japan.

The Zelkova, of all Japanese trees, should be better known in eastern America, where it may, perhaps, become an imported timber-tree, and produce wood as strong as our best oak, which it surpasses in compactness, durability and lightness, for keaki, in comparison with its strength, is remarkably light.

There is little to be said of the other Japanese trees of the Elm family. Celtis Sinensis, with its thick coriaceous leaves and dull red berries, is one of the first trees to greet the traveler landing in Yokohama, where it is common in the groves which cover the shore-bluffs, growing with the Camphor-tree and the evergreen Oaks. It is a southern species of wide range in south-eastern Asia, which we cannot hope to grow in this country, except in the southern states.

Aphananthe aspera, a Celtis-like tree with ample bright green leaves and black fruit, ranges as far north as central Yezo, and may be expected to give interest and variety to dendrological collections in the United States and Europe, although to the mere lover of trees with peculiar foliage or with showy flowers and fruit it will not appear sufficiently distinct from our native Nettle-tree.

Of the Broussonetias or Paper Mulberries, of which two or three species are included in the flora of Japan, I only saw specimens in the Botanic Garden at Tōkyō. They are all trees of the south, or more probably introductions from China. The White Mulberry, Morus alba, however, is certainly a Japanese species, as it grows as a small tree in the remote and primeval forests of Yezo, although the numerous forms cultivated by the Japanese as food for the silk-worm are usually of Chinese origin. Of the Fig-trees which appear in the flora of Japan, I saw nothing at all, with the exception of one or two cultivated shrubby species. They all belong to the extreme south, and inhabit regions we did not visit.

C. S. S.

Note on Nomenclature.

SINCE the publication of my notes on Bladhia paniculata (Nutt.) (Ardesia Pickeringia, Nutt.) (Garden and Forest, iv., 239), it has been found that the genus Icacorea of Aublet, published in 1775, antedates the genus Bladhia (1784) by nine years. As there is no good reason for not uniting the two genera, our Florida and West Indian "Marlberry" should be referred to the older genus; in which case Bladhia paniculata becomes Icacorea paniculata.

U. S. Department of Agriculture. *George B. Sudworth.*

Foreign Correspondence.

London Letter.

Lilium Alexandræ.—A white-flowered Lily was shown this week at Chiswick by Messrs. Wallace, of Colchester, under this name, and also by Messrs. J. Veitch & Sons under the name of Lilium Ukeyuri, a name which it bears in the catalogue of the Yokohama Gardeners' Association, from whom, presumably, it was obtained by Messrs. Wallace and Veitch. It is nearer L. longiflorum than any other species, but it also bears some slight resemblance in the form of the flowers and the color of the stamens to L. auratum. It is peculiar in having short-stalked, semi-erect flowers, which open almost as wide as those of L. auratum, and are pure white. The foliage is similar to that of L. longiflorum. Evidently the last-named species is a very variable one, and I see no reason, if the plant called L. longiflorum, var. chloraster, be included among its forms, why L. Alexandræ should not be looked upon as another, differing only from the type in its shorter, more expanded flowers and the brownish color of the anthers. It was awarded a first-class certificate. All Lily-growers are delighted with L. chloraster as represented now by strong-flowering plants at Kew.

Lilium Lowii.—A plant of this new and very distinct Lily was shown in flower at Chiswick this week by Messrs. Low & Co., of Clapton, who introduced it three years ago, and still hold the stock of it. I noted it in Garden and Forest, vol. iv., p. 352, as a near ally of L. Nepalense with smaller leaves and white flowers with a few purple spots. A figure of it was published in the *Botanical Magazine*, t. 7232. It has a globose bulb two inches in diameter with lanceolate scales. The stem is three to four feet high, leaves three inches long, linear, flowers in an umbel, campanulate, three inches across, the segments recurved, each over an inch broad. This species is a native of the Shan hills, in Upper Burma, where it was collected by General Collett about the same time that it was sent home by Messrs. Low & Co.'s collector. It obtained a first-class certificate. We are indebted to the same region and the same firm for three other beautiful Indian Lilies, two of which are new species, namely, L. primulinum and L. sulphureum, the third, L. Nepalense, being new to cultivation, although described by D. Don many years ago. There are good reasons for believing that all these Lilies may be grown out-of-doors in the warmer parts of England.

Rhododendron Smirnowii and R. Ungernii are two rather new species, which were described by Trautvetter in *Acta Horti Petropolitani* in 1884 from specimens collected on the Asiatic side of the Caucasian Mountains, where they grow wild under the shade of Picea orientalis in company with R. ponticum, L. Seeds of them were distributed from the Botanical Garden at St. Petersburg in 1886, some of which came to Kew, where there are now sturdy little bushes of both species in the arboretum nursery. They are quite hardy, evergreen, in the way of R. caucasicum, but remarkable in having the stems, petioles and under side of the leaves covered with a thick felt-like tomentum. They differ from each other as follows: R. Smirnowii has leaves four inches long, with revolute margins and blunt tips; the felt is very pale brown; the flowers are rose-purple, as large as those of R. Caucasicum, and the calyx is small, flat, with five small lobes. This species has lately flowered at Kew. R. Ungernii has leaves six inches long, with a distinct cusp at the tip, and the tomentum is white. The calyx has linear erect lobes half an inch long, and the flowers are white, with a green tinge, and a few spots of red. This has not yet flowered at Kew. The most striking characteristic of these two Rhododendrons is the felt-like covering on the leaves and branches. They are distinct in appearance from all other hardy Rhododendrons.

Spiræa Bumalda, var. Anthony Waterer.—One of the most useful of all the shrubby summer-flowering hardy Spiræas here is S. Bumalda, indeed, we have few hardy shrubs of any kind which surpass this plant, looking at it in all its excellent points of hardiness, good nature and

Fig. 49.—Zelkova Keaki.—See page 323.

1. A flowering branch, natural size. 2. A fruiting branch, natural size. 3. A staminate flower, enlarged. 4. A pistillate flower, enlarged. 5. Vertical section of a fruit, enlarged. 6. A fruit, enlarged.

floriferousness. If any of the forms commonly grown have a fault it is in the dullness of the color of the flowers. Mr. A. Waterer, of the Knap Hill Nurseries, has, however, a variety named as above, which possesses all the good qualities of the type, plus flowers of a brilliant crimson color. He declares it to be one of the very finest shrubs introduced in the last fifty years, and he is an authority whose opinion commands respect. He exhibited some flowering branches at Chiswick this week and stated that he could show flowers of it as good every week from now till the frost comes. It is, of course, only a sport from the type. Mr. Waterer has not yet distributed it.

Cattleya Rex.—This distinct and beautiful Cattleya is improving every year in popular estimation, and a stout inflorescence bearing three large flowers, shown this week at Chiswick by a Liverpool amateur, Mr. W. C. Clark, will go a long way towards disposing of the doubts raised in some quarters that this Orchid is not as good as it was painted. It is apparently not more difficult to manage than the ordinary Cattleyas, judging by a plant now flowering at Kew. Mr. Clark stated that the spike he showed was one of two borne by the same plant. The pure white of the sepals and petals, and the richly marked maroon and golden color of the labellum are charming features of this Cattleya, which Messrs. Linden, who introduced it a few years ago, described as the most beautiful of all their introductions.

Cypripedium Stonei, var. Carnærtianum.—This was shown in flower at Chiswick by Mr. T. Statter, of Manchester, and obtained an award of merit. It has larger flowers than the type, the petals broad, the basal half white, with reddish-brown spots, the rest colored wholly brown-purple.

Cypripedium Massianum is a new hybrid between C. superciliare and C. Rothschildianum, which was raised by Messrs. F. Sander & Co., and shown at Chiswick, where it obtained an award of merit. It has large flowers, the dorsal sepal white with reddish line, broad fringed petals colored pale yellowish-green, spotted with brown-red. It is the first hybrid from C. Rothschildianum.

Renanthera matutina.—A plant of this, bearing a branched inflorescence a yard long, was, to me, the most interesting Orchid shown last week by Messrs. F. Sander & Co. It was two feet high, with thick linear leaves six inches long, the scape springing from near the apex, being crowded with flowers suggestive of long-legged spiders. Each flower was two inches in diameter, the linear segments equal and spreading, the lip very small, with a saccate base, the color of the whole reddish orange, with crimson blotches becoming almost yellow and red with age. Although a rare plant in cultivation, it was introduced into England by Thomas Lobb in 1846. Messrs. Veitch say of it: "Being less refractory to the cares of the cultivator than R. coccinea, and being, too, of more manageable dimensions, it has proportionally gained in favor." It is a native of Java.

Momordica cochinchinensis.—The tropical Gourds are a special feature at Kew, where a large collection of them is cultivated on the spacious roof of the Water-lily house. This rare species of Momordica is worth growing for its foliage alone, which is palmately lobed, six inches across and deep, lustrous green. It is a perennial, and, therefore, a good plant for clothing pillars, etc., in large houses. The flower is large and handsome, being four inches in diameter, campanulate, with ovate acute petals, thick and fleshy, with prominent veins, covered with soft hairs, and colored straw-yellow, with a large blotch of maroon at the base of the three inner petals. The flowers are produced singly in the axils of the leaves and they are very fragrant. The fruit I have not seen, but it is described as being five inches long, ovate, fleshy, cucumber-like and colored bright red. It is common in India and some parts of China.

Hippeastrum procerum.—This beautiful Brazilian bulb is now in flower in an intermediate-house at Kew. It is the Blue Amaryllis of horticulture, and it has also borne the name of Amaryllis Rayneri (see *Botanical Magazine*, t. 5883). Although introduced thirty years ago, and frequently noted in the gardening papers as one of the most remarkable of the species of Hippeastrum, it has not yet come to the front as a garden-plant, probably because its cultural requirements were not understood. At Kew it is planted out in a raised brick bed in the succulent-house, where it retains its foliage all the year round, although kept dry in winter. The figure in the *Botanical Magazine* does not do the flowers justice, those now open at Kew being nearly as large as those of Lilium longiflorum, the segments equal, and colored violet-mauve, with numerous small purple-red spots. The long-necked bulbs and distichous, falcate, white-edged leaves give this plant an exceptional place among the species of this genus.

Lilium testaceum and Double-flowered Iceland Poppies planted together in a large bed on a lawn at Kew have been a most effective picture during the past month. Nothing could be finer than these Poppies for positions where bright, telling colors are desirable, and the creamy yellow flowers of the Lily overtopping the Poppies go well with them. Both plants are cheap and easy to manage. At Kew they occupy a bed which is planted with Daphne Ponticum for winter effect.

Lilium longiflorum and its two varieties, chloraster and formosana, are flowering beautifully in large beds at Kew. L. Henryi is eight feet high, and L. Greyi six feet. Perhaps the prettiest of all the smaller Lilies is the variety of L. concolor, called in gardens L. Coridion, which is barely a foot high, and is crowned with erect bright crimson flowers at this time of year.

London. *W. Watson.*

Cultural Department.

Grapes under Glass.

We recently received from Peter Fisher & Co., Ellis, Massachusetts, two photographs illustrating a house of Black Hamburg Grape-vines. The Vines were in splendid health, as shown by the luxuriant foliage, and the grapes hung in immense clusters of perfect fruit, and altogether the pictures were a delight to the eye. At our request, Messrs. Fisher & Co. have sent us some notes describing their treatment of the Vines, which we herewith reproduce:

The house is 105 by 20 feet, was planted June 26th, 1890, and contains seventy Vines and nearly 2,000 bunches of grapes; part of the crop is cut. In making the Vine border we use fresh turf from an old pasture, turned grass-side down, building it compactly together to a depth of eighteen inches, and three to four feet in width along each side of the house. This when fairly settled will give a depth of fifteen inches, quite sufficient for successful grape-raising, the border can be added to as required, and the fresh material will infuse new vigor into the Vines.

The Vines were planted three feet apart, and trained to a stake until they reached the glass, and then to a wire or strong piece of twine to the ridge of the house, and about twenty inches from the glass. This prevents burning and gives a free circulation of air. Abundance of moisture was given all over the house and borders, syringing daily morning and noon on all bright days. The house was closed up every evening early enough to hold the night temperature up to sixty to sixty-five degrees, and the day temperature ninety-five or one hundred degrees. Under this treatment the Vines made a strong and rapid growth, and by the last week in September the majority had reached the top of the house, when we gradually increased night ventilation and reduced moisture, later giving full ventilation day and night.

We give no manure in any form the first year, as it tends to cause a rank growth, and, as a result, failure in obtaining thoroughly ripened wood, which is of the greatest importance to ensure success the following season.

The Vines were pruned back two feet from the ground about Christmas, 1890, and the house kept at a temperature of from forty to forty-five degrees during the winter months. By March 1st, 1891, they had again started into growth, and under treatment similar to the preceding year had reached the top of the house by June 26th, one year from date of planting. No manure was given this season, and they were again pruned at Christmas. This time the canes were left 8 feet in length. A wire trellis was then erected all over the house 20 inches from the

glass, with the wires fifteen inches apart. With the temperature kept the same as in the preceding winter, the Vines commenced to grow the last week in February, 1892, and by June 26th (two years from the date of planting) we commenced cutting from a crop of over 700 bunches of very fine grapes, each Vine bearing from eight to twelve bunches, many of them three to four and a half pounds in weight.

The first manure was applied early in the spring of 1892 in the form of a top-dressing of short stable-manure three inches in depth, with a covering of oak-leaves. The latter retains the moisture, preventing rapid evaporation, thus saving time and labor of frequent waterings. If thoroughly done, once a week or ten days will be often enough throughout the season. Under this mode of treatment the feeding roots will come to the surface, where the stimulant is found in form of liquid-manure from the moist top-dressing and waterings. This mulching may be renewed when necessary, but great care must be exercised—a time for it chosen when the house can be kept well ventilated day and night to let the surplus ammonia escape. We have known very fair crops to be ruined by closing up the house during a sudden change of weather just after a fresh top-dressing.

In pruning last winter the canes were cut about eighteen inches from the top of the house, and the side shoots pruned back to two buds, and treated as they were in the season of 1892, only each Vine bears from twenty-five to thirty-two bunches of grapes to a rod fourteen feet in length, giving in all a crop of nearly 2,000 bunches.

The first fruit this season was cut June 26th, three years from the date of planting. The quality is fine, the berries large, with a beautiful bloom on those that hang long enough to reach that stage, for the majority are sold as fast as they are ripe, and at the date of writing, July 20th, the crop is fast diminishing.

During the winter and spring months of 1891–92 we grew Carnations in this grapery under a temperature ranging from forty to forty-five degrees during the night, and fifty-five to sixty-five degrees by day, only increasing it as the grapes required. Last winter Violets and Mignonettes, Stocks and Spiræas were the crops grown in succession during winter and spring.

Ellis, Mass. *P. Fisher & Co.*

Rose Notes.

THE busy season of replanting the Roses under glass has again arrived; this annual expenditure of labor having been made necessary in many localities from the prevalence of the Snout-beetle, Aramigus Fullerii. This same pest has also encouraged the shallow-bench system for planting Roses, because it is easier to thoroughly cleanse the house each season where this method of culture is adopted, than it is where deep borders are used. A thorough cleaning of the woodwork and the entire interior of the house should be given before the Roses are reset, and, if possible, a fumigation with sulphur should be added, since sulphur fumes are fatal to many fungous germs as well as insects. The woodwork of the roof will be improved by a fresh coat of paint, and all necessary glazing should be attended to so that the entire structure shall be in proper condition for active work. The woodwork of the benches will be benefited by a heavy coat of whitewash, which helps to prevent the spread of fungus. The use of slate for the bottoms of benches in Rose houses has not extended among large growers to the extent that was once expected,

Fig. 50.—Ulmus campestris in Yezo.—See page 323.

many of them still continuing the wooden benches as preferable, notwithstanding their temporary character.

An excellent material for the bottom of benches is oak slabs about one and a half inches thick, such as may be sometimes obtained from a sawmill from the outside cuts on a log. Such lumber is, of course, in irregular sizes, but this is no great objection for such a purpose, and a bench will wear for several years without renewal. The soil for replanting is usually composed of decayed sod from pasture land and it is, therefore, a likely abode of the larvæ of the June bug, a dangerous enemy of young Roses, which must be watched closely and promptly destroyed. It is a wise precaution to examine all the soil carefully when putting it into the benches.

The young plants should not in any case be set out while dry, and a good watering should be given them before they are turned out of the pots, and then a moderate watering should be added to settle the soil after they are planted. A very slight shading on the glass over the young plants will encourage them to start away, but the shading should be only temporary, or too soft and sappy a growth will follow. All flower-buds should be removed from the plants until such time as the flowers are needed in the fall, and neat staking and tying is essential to the good appearance of the Roses, the galvanized wire system of support being generally accepted as the best method.

Perfect cleanliness in the Rose-garden, whether indoors or out, should always be insisted on, for with care in this respect much trouble from both insects and fungi may be avoided; therefore all weeds, dead leaves and old flowers should be promptly removed. The method once used by many large trade-growers of growing certain varieties in pots for winter flowering may also serve in some amateur establishments in which lack of space prevents the use of an entire house for Rose-growing. This method, formerly used by many large growers in the vicinity of New York for Cornelia Cook and some other varieties, consisted in potting on young plants through the spring and summer until they were finally put into eight or ten-inch pots, and placed outdoors in the full sunshine, though plunged in a bed of ashes to prevent drying out. These plants made abundant roots and not very great top-growth, so that when they were brought into the houses as soon as the nights became cool in the fall, they were in fine condition to start into strong flowering growth, and under careful treatment produced buds of remarkable quality.

In some houses space can be spared for one or two good climbing Roses, and among these few are better than Lamarque and Maréchal Niel, though both these fine old varieties are croppers, and require a certain season of comparative rest in order to produce the best results. The climbing sport from Perle des Jardins is also a handsome grower, though possibly gives fewer flowers in a year than Maréchal Niel, but it has the advantage of a stiff flower-stem. It is useless to try to grow other Roses beneath a climber, owing to the excessive shade, and it is therefore necessary to fill such space with some shade-loving plants instead of the Roses.

Holmesburg, Pa. *W. H. Taplin.*

Chrysanthemums.

THESE will require considerable attention during the next two months, and what we do during this time will go far toward determining whether the plants succeed or fail. It is customary to discontinue stopping specimen plants by the first of August. In order, however, to have neat, shapely specimens, it will be necessary to take out the tips of several strong shoots in some varieties, which would be sure to outgrow the rest if left. Frequent syringings, on evenings of bright days, generally have a beneficial effect in keeping the surroundings cool. Tobacco water, with whale-oil soap and white hellebore in mixture, helps to keep down troublesome insects. Straggling shoots, liable to be broken by wind, should be supported by a few stakes.

The plants should be fed as soon as we have evidence that the soil is becoming exhausted, which is generally indicated by a shortened harder growth. After a trial of many artificial manures, I find none safer than Clay's Fertilizer. Manures, such as guano, sulphate of ammonia and nitrate of soda, should be used very cautiously, as their strength varies very much, according to the different compounders. The injurious effects of their indiscriminate use, even by practical gardeners, so often occur, that amateurs had better rely on a less dangerous article. Where drainings from a barnyard are not at the command of the grower, well-pulverized sheep-manure can be used; it can be obtained from nearly all seedsmen. It is an excellent fertilizer, and may be used mixed with equal bulk of loam as a top-dressing, or at the rate of half a pound to a gallon of water in liquid form. The best way to do this is to put the manure in a porous bag, thus keeping the liquid free and clear.

Plants for specimen blooms are nicely started and will make rapid growth. What is known as the July bud, but really a premature crown, is showing now and should be taken out. In place of this, allow one of the best side-shoots to lead. This, in time, will, in all probability, produce a second crown early in August (or later, depending upon the time the first bud showed), which is the best bud for Domination, Mademoiselle Lacroix and Rohallion, and almost all early varieties. With the exception of very early varieties, all buds appearing before the tenth of August should be taken out. The great majority of these so treated after the first of August will give only "terminals," which are really the best and surest buds to take, especially for commercial purposes.

Wellesley, Mass. *T. D. Hatfield.*

Micromeria rupestris, now in flower, is a very attractive herbaceous plant or sub-shrub. Several of the Micromerias are capital plants for the rockery, but M. rupestris seems to be the most satisfactory of the family. It is perfectly hardy, and forms a dense low-growing plant, with numerous prostrate stems, which at this season are furnished with small leaves in whorls, having a Mint-like fragrance, and with a flavor identical with that of Pennyroyal. The numerous small flowers are white, with lavender spots on the inner side of the petals, and are borne from the axils of the leaves. When in bloom the plant, at a casual glance, has a Heath-like effect, as the flowers are produced for several inches along the stems after they have turned upward and assumed an erect position. Either for the rockery or the border of the less formal part of the garden, it is a distinct and pleasing plant. It is readily propagated from cuttings and from seeds, and continues to bloom until autumn. Some seeds which I had from H. Correvon, of Geneva, gave me flowering plants the first season.

Elizabeth, N. J. *J. N. Gerard.*

Pansies and Forget-me-nots.—Seed of these plants for flowering next spring should be sown now. Choose a rather shady spot; make the soil moderately firm; scatter the seeds on the surface and rake them in. This is all the covering they need. Too often they are covered too deeply. Keep well-watered with a rather fine sprayer. When large enough, transplant into nursery-beds, about five inches apart each way. Protect during winter winter with light litter. Where Pine-needles can be obtained there is nothing better.

Wellesley, Mass. *T. D. H.*

Correspondence.

Arbor Day.

To the Editor of Garden and Forest:

Sir,—When Arbor Day was instituted the persons who had to prepare the programme or order of exercises for its observance in our country-towns hardly knew what material to use. It was a new thing and they did the best they could, with no precedents to guide them. Having once been arranged and adopted, these forms are usually pretty closely followed, and we have in most cases much music, declamation and oratory, but very little of anything that can add to the popular interest or knowledge regarding trees or forests, or their functions and value. In many cases these subjects do not come in at all, except, perhaps, by the declamation of Morris' verses, "Woodman, spare that tree," or something no more substantial. The orators often vaunt our national resources, our forests with the rest, in such a way as to make, distinctly, the impression that these are inexhaustible, and that no care of them is necessary. Last year and this, in several states, some of the Arbor Day speakers have assailed those who are interested in promoting rational methods of treatment for our forest-resources, denouncing them as "sentimental enthusiasts," and have thus used the opportunities of the day to oppose the very objects for which it was instituted.

It would be a most fit and influential means of promoting the better observance of the day, and of popular education regarding important public interests, if we could have some kind of plain and vital statement of the objects and purposes for which the day was instituted, and which should be recognized and understood by those who take part in its observance. Here in New England we greatly need a kind of "liturgy" or "ritual" for the day's celebration. We have far too much oratory and too little practical or intelligent instruction. The

oratory and the music crowd out the tree-planting to a great extent, and most of the trees planted receive little care and are usually dead when the next Arbor Day comes around. When there is to be a crowd at the celebration the trees should be planted at some other time. A man can plant a tree so that a few school-children can see and learn how it should be done, and so that they can plant one themselves, but no man is apt to plant a tree properly when two or three hundred people are watching him in impatience for the introduction of more sensational features of the programme. When we consider the careful and unhurried manner in which a tree should be planted, it is obvious that music and oratory are hardly more appropriate accompaniments for the work than they would be in that of milking a cow.

Perhaps, as Mr. Morton, our Secretary of Agriculture, is the founder of Arbor Day, he could prepare and send out from his Department an appropriate popular statement which could be read, either in whole or in part, as a feature of the proceedings at every celebration of the day. But we should also have something arranged as a responsive reading, so that the audience could participate directly, as people are educated in far greater degree by what they do themselves than by what others say in addressing them. It might be appropriate to consider the matter at the forestry meeting at Chicago in October, and in the mean time any suggestions or discussion by the press relating to the subject would be distinctly helpful.

Franklin Falls, N. H. *J. B. Harrison.*

Bulbs in the South.

To the Editor of GARDEN AND FOREST:

Sir,—Referring to Mr. Endicott's letter (page 288), I would say that I have now in bloom here, as a means of comparison, northern-grown bulbs of the Pearl Tuberose. The stalks have about the same average height, are slightly stouter than the scapes from North Carolina-grown bulbs, but the flowers are by no means as numerous or as large as ours. In fact, they are quite insignificant in comparison. The bulbs of Lilium candidum, now thoroughly ripe here, are certainly in better condition to make their autumn leaves, preparatory to winter forcing, than those brought in in autumn from Europe. A grower who is intimately acquainted with bulb-culture here and in Holland assures me that he knows from experience that land in North Carolina, which can be bought for less than five dollars per acre, will grow bulbs equal to land in Holland, which costs $3,000 per acre. With an abundance of cheap labor and cheap land, and a climate superior to that of Holland, there is no reason why we should not grow bulbs as cheaply as they are produced there. One of our northern importers had an invoice of 100,000 bulbs of L. candidum from Europe which were too worthless to sell. He sent them to North Carolina and grew them one season, and on their return to New York they were superior to any foreign bulbs ever seen there. In the neighborhood of the spot where these Lilies were grown, thousands of acres of forest-lands of the same sort can be bought for three dollars an acre.

Narcissus Tazetta and N. Polyanthus sometimes get hurt here in a winter like the last, when they are planted too early and start into growth in fall. Some we planted last fall were hurt badly by the cold weather in January. Others planted late in January grew finely and made superb bulbs. Doubtless, some of these bulbs can be grown well in Massachusetts, but when a more sunny climate enables the grower to produce better bulbs in a year's less time, Massachusetts will not be a dangerous competitor. Growers are continually finding fresh adaptations in various soils and climates for the best production of different plants, and whenever any location demonstrates its superiority for a certain plant, there is where the cultivation of that plant will eventually be carried on, whether it be Massachusetts or North Carolina or Texas. The keen competition among dealers for the best products will soon build up culture in those places best adapted to any article in demand.

The capacity of eastern North Carolina for bulb-culture has already attracted the attention of the Holland growers, and a wealthy bulb-grower is now expected here to make a personal examination. If he concludes he can grow the bulbs here at a greater profit than in Holland or New England, no motives of patriotism will stand in the way. The Roman Hyacinth certainly attains a size of bulb and profusion of spikes here that I have never seen in bulbs from elsewhere, and I have been handling them for many years. I have cut flowers from the same bulbs here from middle December until the middle of March.

Raleigh, N. C. *W. F. Massey.*

The Columbian Exposition.

The German Wine Building.

STANDING in the south court of the Horticultural Building is a structure covering 2,000 square metres, which is given over wholly to an exhibit of German wines, but which is unobserved by the great body of Exposition visitors, yet this little building is one of the gems of the Fair. It is built in the form of a cloister-cellar, and, even with the exhibitive features introduced into its architectural composition, it is still as retired and quiet in general feeling as the cloisters which it represents. The interior space is occupied with tables and stands of wine in bottles, the combined exhibition of 289 growers and dealers of the German Empire. The arrangement of the bottles is effective because very simple. There is no effort, as there is in some other exhibits, to obscure the monotony of the display by mere decorative or striking designs. One or two bottles of the different brands made by the various exhibitors are shown upon circular racks. There is no wine exhibit in the Exposition, it is said, which contains so much variety in actual brands and number of exhibitors as this "Deutsche Wein Austellung."

To the general public, however, the merit of this unique building lies in the remarkable panoramas which lie beyond its eastern and southern walls. Upon these sides the building is opened between pillars, and some of the most striking of the German wine regions are thrown upon canvases beyond. One looks out, as from a porch, upon landscapes of remarkable picturesqueness, and the effect is greatly heightened by plantations of Grape-vines in the foreground. These Grape-vines are the actual plants brought from the neighborhoods represented on the canvas, and set in earth as they customarily grow. Of course, the Vines are not living, but they have been so dexterously clothed with artificial leaves and fruit that they represent the growing and bearing Vine almost perfectly. As each of the panoramas represents a distinct wine district, so the Vines in each foreground show the exact method of training in those districts; and the artificial fruits represent the varieties grown there. There are probably no panoramas in the Exposition which are more perfect in their way than these in the German Wine Building.

The first panorama, as one enters the building from the main entrance at the north, is a view of the Rhine from Niederwald. The canvas is twenty-four feet high by thirty-six feet long, and it represents a radius of eighteen miles. The painting is by Herwarth and Rummelspacher, Berlin. The canvas shows the Rhine at the junction of the Nahe, with Bingen and Rüdesheim drawn in detail. At the left is the famous castle of Rheinstein, and in an island in the river is the Mouse Tower, both conspicuous objects to all tourists of the Rhine. The canvas is remarkable for its panoramic features. The vines which stand in the foreground of this remarkable landscape stand about three by two feet asunder, and are trained to single light stakes some five feet high. Two or three arms arise from near the root and are tied straight up along the stakes. The Grape chiefly grown here is the white Riesling. The second panorama is the same size as the first and is made by the same artists. It represents three widely separated regions, although the landscapes have been selected with reference to effective combination upon the same canvas. At either side are views from the Mosel—Trarbach and Traben at the left and Trier at the right—and between them is the vale of Neustadt an der Haardt. At Trarbach and Traben the vines are trained to stakes, five or six canes arising from the surface and disposed in loops upon the stakes, a common method in European vineyards. At this place the Riesling is the chief wine-grape. At Neustadt the vines are trained on low trellises of one or two wires, the system being very like that known in western New York as the High Renewal. Two main arms or heads arise from near the surface of the ground, from each of which two or three canes are carried out upon the wires. At this point the chief wine-grapes are Riesling, Sylvaner, Traminer and Portugieser. The Fleisch Trauben, which is our Black Hamburg, is grown, but not for wine.

The third panorama, painted by Von Freudemann, Richter and Lefensdorf, Berlin, shows the Neckarthal—or Neckar valley—from Esslingen to Cannstadt. This is a part of the Alsace-Lorraine region, noted for its mild wines. Here the vines are grown to three main arms, trained to as many stakes, which stand about two feet apart, with a space of two and a half feet between the rows. The arms are bent inward at the top in hoop fashion. The wine-grapes of this region are the Riesling, Sylvaner, Limberger and Trollinger. The last is said to be identical with Black Hamburg, but it is here used

for wine-making. Rappoltsweiler, in Alsace, is the subject of the next canvas, by the same artists. It is one of the boldest of the lot, although small, for the great crag and castle of Rappoltstein stand in the foreground. In the distance can be seen Strassburg and the cathedral. Chasselas, Guteder, Riesling, Ortlieber and Black Burgunder are the wine-grapes of this particular region. The vines are trained to stakes six or seven feet high, the arms being three, with the tops recurved inward like a hoop. The fifth and last panorama is a scene in Baden, at Müllheim. Here the vines, trained to two or three arms, are tied nearly straight up to short stakes. At this place the leading wine varieties are Krachgutedel, Riesling, Sylvaner and Black Burgunder. Aside from these striking panoramas, the building contains large fresco maps of the wine regions of the Rhine and Mosel and of Alsace-Lorraine.

The expenses attending the construction of the building and exhibit were divided between exhibitors and the German Government, the latter contributing 25,000 marks. The general charge of the German wine interest at the Exposition is in the hands of Commissioner H. W. Dahlen, a resident of Geisenheim on the Rhine. The exhibit is one of the most unique and valuable upon the Fair grounds, and it is a pity that so few people see it. The panoramas may be likened to inclosed porches. The observer stands in the window and looks outward. The canvas incloses the far side of the porch, while the planted vines occupy the floor. The roof, which is obscured by projecting eaves of vines, is glass, and all the changing shadows of the sky are reflected upon the canvas, giving it the varying expressions of life.

Chicago, Ill. *L. H. Bailey.*

Notes.

Mr. E. S. Carman finds Mott's Excelsior the best of the early dwarf wrinkled peas, and far ahead of Little Gem and American Wonder. Heroine, as an intermediate and a late pea, he considers the best for home use. The vines are prolific, the pods are large, the seeds are large and of choice quality.

The next meeting of the Australasian Association for the Advancement of Science will be held in Adelaide, South Australia, in the week commencing September 25th. The association, which is now five years old, numbers nearly one thousand members, and the proceedings are of unusual interest. To naturalists this season of the year is especially attractive in south Australia, when the spring is just merging into summer, and visitors will find the months of October and November delightful.

Professor Massey, of the North Carolina Experiment Station, writes that he can see no reason why the cultivation of vegetables under glass should not be profitable in the southern states at points where quick transportation northward is possible. If Boston growers can force Cucumbers at a profit by using double sashes and heavy coal bills, why could not this be done better still in North Carolina, with cheaper houses and half the expense for fuel? If Lettuce is grown at a profit with fire-heat, and sent from Boston to Washington, why should not a man in North Carolina grow it at a profit when he can raise equally good Lettuce in a simple cold frame?

Last week the tall panicles of Yucca filamentosa were very beautiful, especially in the light of the moon, when the flowers of this plant always show at their best. In sunlight the tints of green and yellow in the flowers detract somewhat from their appearance, but in the moonlight they are pure white, and there are few objects in the flower-garden at this season that are more beautiful than these stately masses of bell-shaped flowers when relieved against a background of dark green foliage, and especially of conifers. After the flowers are done blooming, the stalk, and, indeed, the whole crown of rigid leaves, from the centre of which it starts, should be cut away, so that the side-shoots which have started may become strong enough to bear a flowering-stalk next year.

Very attractive is a long row of Nasturtiums, whether of the large variety or the smaller, Tropæolum Lobbianum. Among a lot of named varieties in the trial-garden of Peter Henderson & Co. we noted lately as quite distinct: Prince Bismarck, which bears profusely, commencing when it is quite a small plant, flowers of an orange-scarlet; Asa Gray, flowers cream-colored, with dark crimson spots; Lilli Schmidt, light scarlet; Napoleon III., clear yellow; Roi de Noirs, dark crimson. Among the large varieties, King Theodore has a very dark flower; Hemisphericum is a light straw color; Scheurianum is cream-colored, with scarlet blotches. The varieties with dark-colored foliage, like Schultzii, are invariably less vigorous growers than those with leaves of clear green.

Cherries, from California, seem as beautiful and abundant as they were two months ago. The varieties, Royal Anne and Black Republican, are the popular favorites. Congress pears are coming from the same state and cost a little more than the Bartletts and Howells. Crawfords and Hale's Early are the principal varieties of peaches which are now coming from the Pacific coast. Plums are still abundant and cheap. From the southern states Le Conte pears are coming of rather lower than ordinary quality. Peaches from the far southern points are becoming rare, and those from Maryland and Delaware are taking their places, and are of fair quality for early varieties. Raspberries are practically out of the market. Astrachan and Sweet Bough apples are $1.75 a barrel. Pocono Mountain huckleberries are twelve cents a quart. Good gooseberries are worth $2 a bushel. Florida continues to send Delaware grapes and some choice Grape-fruit.

A very effective machine for watering lawns and gardens, where a hose under considerable pressure can be used, is the one known as Hoyt's Lawn Sprinkler, manufactured at St. Claire, Minnesota. The nozzle of the hose in this implement can be set at any angle, and then a small overshot-wheel keeps slowly revolving, and in this way turns the nozzle around in a horizontal circle. If the water is directed in a single stream this will water a space in the form of a ring, and as the machine can be made to revolve as slowly as need be, this circular strip can be watered thoroughly at one revolution, or the water can be applied as many times as needed. The nozzle can then be lifted so as to water a ring inside of this, and so on in concentric circles until the whole area of the large circle is thoroughly wet. There is also an arrangement for breaking the water into spray by which the machine can be set and left for a long time to sprinkle the whole area of the circle evenly. Besides doing good work, it is an interesting little piece of mechanism which every one will stop to notice when he first sees it.

Mr. W. F. Bassett, of Hammonton, New Jersey, sends us several plants of Euphorbia Ipecacuanhæ to show the great diversity of form and color in the foliage. Some of the leaves are of an exceptionally bright crimson, and some deep maroon, while there are intermediate gradations of every shade between these colors and plain green, while in form the leaves of the same plant vary from linear to nearly round. Mr. Bassett writes that the plants vary to a marked degree in habit, and he observes that those which have large and broad leaves have a tendency to a rounded and almost hemispherical outline, often as regular as if they had been repeatedly sheared, while those with narrow foliage vary more in habit, and often assume open and irregular forms. The plant is most abundant in sandy places, where little other vegetation interferes with its chance to display its individual character, and Mr. Bassett suggests that some forms of it have decided claims to beauty, and in certain places it might be used to good effect in landscape-work. Its roots are thick and brittle, extending deeply into the ground. There is little doubt but that it would grow from pieces of the root just as Euphorbia corollata does.

In an enumeration of the valuable new plants which Herr Späth is ready to send out from his nurseries at Rixdorf, near Berlin, we notice descriptions of Cratægus rivularis and C. apiifolia, and of Ilex decidua, all originally obtained from the Arnold Arboretum. With regard to Populus Euphratica Oliv. the writer says: "Examples obtained through the late Herr Laucher from Turkestan in the year 1881, unfortunately perished. But through the kindness of General Korolkow, I am now enabled again to introduce this tree, as remarkable historically as it is botanically. Turkestan was likewise the home of this new importation, so we have reason to expect that it will permanently establish itself in our gardens, for one specimen of the former importation survived our winters unhurt in a sheltered corner of the Horticultural School at Potsdam and perished only a few years ago from some unknown cause. According to recent investigations this Poplar is the 'Arab' of the Bible, the so-called Willow upon which the exiled children of Israel hung up their harps, and which was formerly supposed to be Salix Babylonica, our well-known Weeping Willow. Its interest for the botanist resides in the surprising differences exhibited by its foliage. One might call it a Willow-leaved Poplar if he considered only the narrow gray-green leaves of the young plants. But these show only one extreme of the marvelously changing series of forms which reaches at the other extreme, the broad kidney-shape characteristic of the leaves of Cercis. As regards soil this tree makes the most modest possible demands. In its home it inhabits dry sandy steppes, while, according to some observers, it also delights in the vicinity of water."